

DEVICE FOR FORMING AN IMPRESSION ON MEAT PRODUCTS  
AND METHOD OF USING THE SAME

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BACKGROUND OF THE INVENTION

This invention relates to a device and method for providing an impression on the surface of meat products.

In the preparation of pre-cooked meat products, as for example ham, roast beef, chicken, pastrami, turkey, etc., netting is commonly used for providing an impression of the outer surface of the meat product. Nets initially were used to hold together multiple pieces of a meat product such that the pieces were cooked together and sold as a single unit of meat product. When the meat products were cooked with the netting, the netting left an impression on the meat products. Nowadays, an impression is used on meat products for decorative purposes.

Current processes of preparing pre-cooked meat products require that the meat is stuffed within a net pouch and then vacuum packaged using a plastic film. The packaged meat is then cooked. After cooking is completed, the packaging and the netting are removed leaving a netting impression on the meat product and the meat product is repackaged for sale.

This process due to its numerous steps is time consuming and costly. As such, a more efficient method and device for putting an impression on a meat product is desired.

SUMMARY OF THE INVENTION

A device and a method are provided for efficiently providing an impression such as a netting impression on a meat product. In an exemplary embodiment, a device is provided having two members, each defining a concavity or depression having a plurality of protrusions forming a pattern. A meat product to be impressed is sandwiched between the two

concavities such that the protrusions form an impression on the meat product outer surface. The device is heated so as to 5 cook the impression on the meat product outer surface. The meat product is then removed from the device and cooked to a final state. In a preferred exemplary embodiment, the meat product is vacuumed packaged in a film prior to being placed within the concavities of the device for forming the 10 impressions on the meat product outer surface. After the impressions are formed on the outer surface, the packaged meat product is removed from the device and may be cooked while still packaged to a desired state. Alternatively, the packaged meat product may be cooked to a desired state in the 15 device.

#### BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a top view of an exemplary device of the present invention for forming an impression on a meat product.

20 Fig. 2 is an enlarged section of an inner surface of the exemplary device shown in Fig. 1.

Fig. 3 is an end view of the exemplary device shown in Fig. 1.

25 Fig. 4 is an end view of another exemplary embodiment device for forming an impression on a meat product.

Fig. 5 is a side view of an exemplary embodiment apparatus including a plurality of devices for forming impressions on multiple meat products.

Fig. 6 is a top view of the apparatus shown in Fig. 5.

30 Fig. 7 is an end view of another exemplary apparatus of the present invention for forming impressions on multiple meat products.

DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS OF THE INVENTION

A device and a method are provided for efficiently providing an impression, such as a netting impression on meat products, as for example ham, turkey, chicken, pastrami, roast beef, etc. An exemplary device 10 is a clam shell device having a netting pattern 12 formed on its inner surface 14, as shown in FIGS. 1 and 2, for providing an impression on a meat product. The exemplary clam shell is composed of two members 16, 18, that are pivotally coupled to each other such that they can pivot between an open position 19 and a closed position 21, as for example shown in FIG. 3. Each clam shell member inner surface 14 defines a depression or concavity 17, 19 for surrounding and impressing a pattern on the meat product. In the exemplary embodiment device, the pattern is defined by a series of quadrilaterals 20 protruding from the inner surface 14 of each clam shell member 16, 18. Each quadrilateral is formed by four walls 22. In the exemplary embodiment, the quadrilaterals are defined by longitudinal linear protrusions 24 intersected by lateral linear protrusions 26. The impression surface or inner surface 14 of each clam shell member may be oval, spherical or have other various shapes. In the exemplary embodiment clam shell shown in FIG. 1, the impression surface is oval and it is defined by parallel lateral lines 28 and by longitudinal lines 26 extending between two common vertices 30 much like lateral and longitudinal lines on a globe. In the exemplary embodiment, the pattern is formed by milling the material out of the clam shell inner surface. The clam shell itself may be made from various materials used to make cooking devices, as for example stainless steel.

In an alternate exemplary embodiment, the clam shell may be composed of two members 17, 19 which are connected to each other using latches 23 extending from one of the members which

latch into depressions 25 formed on the other member as for example shown in FIG. 4. The two members are separated to 5 load the meat product and then are brought together and connected using the latches for forming the impression on the meat product.

Various size of clam shells can be made for accommodating various sizes of meat product. In the exemplary embodiment, 10 the meat product is placed in the clam shell and the clam shell is closed. The meat product volume should be slightly greater than the volume defined by the impression surfaces of the clam shell members. In this regard, when the clam shell is closed, the protrusions 26, 28 of the clam shell penetrate 15 the meat product providing an impression on the meat product outer surface. By controlling the height of the longitudinal and lateral linear protrusions 26, 28, the depth of the impression on the meat product can be controlled. In a preferred embodiment the height of each longitudinal and 20 lateral linear protrusion is between about 2mm to 4mm for providing an impression on the meat product of about 2 mm to 4 mm deep.

Once the meat product is "clamped" within the clam shell, the clam shell is heated, as for example by placing it 25 in hot water or through electricity. In an exemplary embodiment, the clam shell itself may be a heating element which heats up when supplied with electric current. The heat cooks the impression onto the surface of the meat product. The amount of heat and time of heating for cooking the 30 impression on the meat product is determined based on the type of meat product being impressed. Once the impression is cooked on the meat product, the meat product is removed from the device and cooked to a predetermined desired state. Once cooked to a desired state, the meat product is ready for 35 shipping. Typically, the meat product has been cooked to its

desired state when it is cooked to about 160°F internal  
temperature. The meat product may also be packaged  
5 preferably by vacuum packaging prior to cooking to the desired  
state.

In an alternate embodiment, in order to prevent  
contamination of the meat product by the heating medium as for  
example, the hot water, or the impression device, the meat  
10 product may be packaged, as for example vacuum packaged using  
a packaging film prior to forming the impression. The  
packaged meat product is placed into the clam shell for  
forming and cooking the impression onto the outer surface of  
the meat product. The meat product is then removed from the  
15 clam shell and cooked to its desired state with the packaging.  
Alternatively, the meat product may be cooked to its desired  
state while still in the clam shell. This may be accomplished  
by prolonging the heating time of the meat product when in the  
clam shell. In a further alternate embodiment, the packaging  
20 may be removed prior to cooking the meat product to its  
desired state.

The packaging used to package the meat product prior to  
forming the impression is preferably accomplished by using a  
film that does not shrink and that is relatively relaxed.  
25 Film packaging may be accomplished by vacuum packaging methods  
such as roll stock film packaging or heat shield bay packaging  
processes which are known in the art.

The clam shells can be closed to clamp the meat product  
either manually or mechanically. For example the clam shells  
30 may be coupled to actuators or other well known mechanical  
systems causing them to close relative to each other for  
"clamping" the meat product and to remain closed as necessary.

The entire impression process may be automated. In an  
exemplary embodiment, multiple clam shells 10 may be provided  
35 coupled to a conveyor system 39 having a conveyor belt 40, as

for example shown in FIGS. 5 and 6. In the exemplary embodiment shown in FIGS. 5 and 6, two rows of clam shells are 5 connected on the conveyor belt 40 which travels above a container 42 containing hot water 44 such that as the conveyor belt travels along the conveyor system, a portion of the belt faces away from the hot water and a portion of the belt faces the hot water.

10 As the conveyor belt travels the clam shells 46 connected to the portion of the belt facing away from the hot water open allowing the meat products to be removed and new meat products to be inserted into the clam shells. This can be accomplished automatically or manually. As the belt continues to travel 15 along the conveyor system, the clam shells get submerged into the hot water. Prior to being submerged, the clam shells close "clamping" the meat product.

As the belt continues to travel, the clam shells remain 20 submerged in the hot water until they reach an end of the conveyor system and are raised above the hot water. When that occurs, the clam shells open again to allow for removal 25 of the impressed meat product and the loading of new meat product. While some of the clam shells are submerged in the hot water, i.e., the clam shells that are connected to the portion of the conveyor belt facing the hot water, the clam shells connected to the portion of the belt facing away from the hot water are open ready to be unloaded and reloaded with meat products.

The speed of the conveyor is such that the "clamped" meat 30 product is retained within the hot water for a predetermined period of time for cooking the impression onto the outer surface of the meat product. Alternatively, the time that the clam shells remain submerged in the hot water may be sufficient for cooking the meat product to its final state.

In another alternate exemplary embodiment, multiple compartments 50 having impression surfaces 51 may be formed on a bed 52. Impression surfaces 54 are also formed on compartments 55 on a cover 56 that mates with the bed 52 as for example shown in FIG. 7. Each of the compartments 51 on the bed is aligned with a corresponding compartment 55 when the cover is mated to the bed. With this embodiment, meat products to be impressed is placed within the compartments 51 on the bed. The cover is then mated to the bed such that the meat product is "clamped" between opposite impression surfaces 50, 54 of the corresponding compartments 51, 55. The mating of the cover to the bed may be accomplished by hydraulic pressure. Once the meat product is "clamped", heat is applied to the impression surfaces 50 and 54 for cooking the impression on the meat products. The impression surfaces 50, 54 may be heating surfaces that heat up when supplied with electricity. Alternately, steam or hot water may be applied to heat the impression surfaces. The steam or hot water may be applied by submerging the bed and cover in steam or hot water bath or by supplying steam or hot water to the bed and cover as for example by supplying steam or hot water to areas in the bed and cover surrounding the impression surfaces. As with the previous embodiments, the impressions on the meat product may be accomplished prior to packaging or after packaging.

Once, the impression has been formed on the meat product, cooking to a desired state may be accomplished by placing the meat products onto the cooking rack while packaged or unpackaged. Alternatively, the meat products may be cooked to their desired state while "clamped" in the device used to form the impression.

As can be seen with the inventive device and process, the amount of time to form an impression such as a net impression on meat product is reduced since netting does not have to be

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5 applied and removed and since the product can be impressed  
with the netting pattern without having to remove the  
packaging. Consequently, the throughput, and costs for  
forming the impression on meat products are decreased.

10 Although this invention has been described by way of  
exemplary embodiments, the invention is not to be limited only  
to such embodiments. As for example, the clam shells may be  
made only from wiring and the depth of the impressions may be  
controlled by controlling the amount of pressure used to clamp  
the meat product within the wire clam shells. In other  
embodiments, the pattern formed within a clam shell for  
providing an impression on a meat products may be varied. For  
15 example, squares, diamonds or other geometric shapes may be  
formed instead of rectangles.

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